

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE PCT NATIONAL STAGE APPLICATION OF  
VÉRONIQUE HALL-GOULLE ET AL

Group Art Unit: **1623**

Examiner: **Layla D. Bland**

INTERNATIONAL APPLICATION NO. **PCT/EP 04/053332** **Confirmation No. 6112**

FILED: **December 8, 2004**

FOR: REACTIVE POLYSACCHARIDE

DERIVATIVES, THEIR PREPARATION

AND THEIR USE

U.S. APPLICATION NO: **10/583,012**

35 USC 371 DATE: June 15, 2006

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**REPLY BRIEF**

In response to the Examiner's Answer, dated August 18, 2009, which itself is in response to the Appeal Brief filed June 16, 2009, Appellants respectfully submit this Reply Brief for entry and consideration in the appeal of this case. This Reply Brief is due Monday, October 19, 2009.

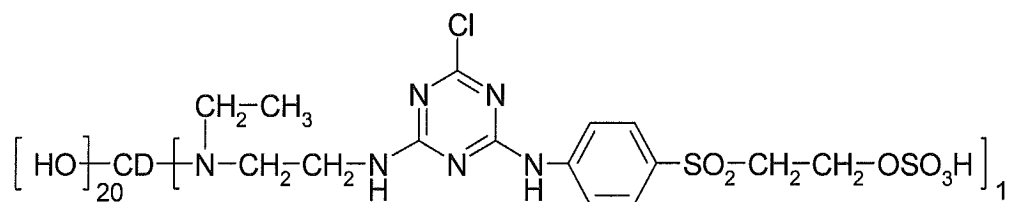
Appellants take this opportunity to respond to specific remarks of the Examiner's Answer.

Again, claims 1-3, 7 and 10 are argued as one group.

Claims 4 and 5 are argued as a separate group.

Claim 16 is argued separately.

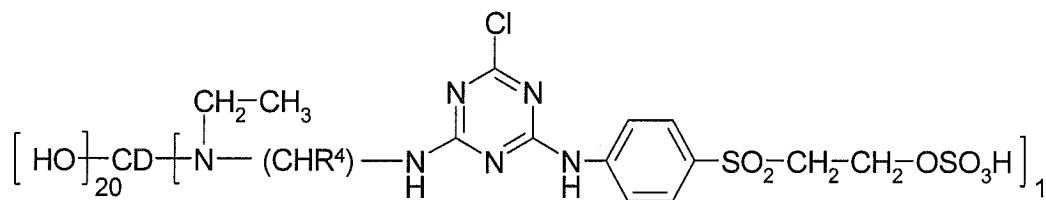
The elected specie is compound 116a on page 38 of the disclosure:



Reuscher contains two separate generic descriptions of his compounds.

The first is from col. 1, line 55 to col. 2, line 11. In this generic description,  $R^2$  is a nitrogen containing heterocycle which is either linked directly or via a spacer by means of an ether, thioether, ester or amine, where the spacer is an alkyl or hydroxyalkyl having 1-12 carbon atoms, which is bonded to the anhydroglucose via an ether, thioether, ester or amine and the nitrogen containing heterocycle includes at least one halogen or ammonium substituent. Hence, Reuscher very generically discloses the present elected specie and the compounds of claims 4 and 5 in this first generic description.

The second generic description is from col. 2, line 12 to col. 4, line 19. The closest possible compound of this second description to the present elected specie is when R is  $R^2$  where  $R^2$  is  $-R^3_m-$  ( $CHR^4$ )- $R^5$ - $R^6$ .  $R^3$  may be  $-NR^7$  where  $R^7$  is alkyl.  $R^5$  may be  $-NH-$ .  $R^6$  may be a triazine moiety substituted by Cl and by  $-NR^{10}R^{11}$  where  $R^{11}$  may be  $-Ph-SO_2CH_2CH_2OSO_3H$ . In this case, the close compound of Reuscher is:



Appellants point out that this "prophetic" compound is only very generically disclosed. It is not at all specifically disclosed. Further, Reuscher does not fairly suggest any diamino linked cyclodextrins. This is discussed further below.

There is no overlap of the compounds of the second description of Reuscher with the present elected specie, as  $-\text{CHR}^4-$  is non-equivalent to present ethylene. Present claim 4 requires B to be a  $\text{C}_2$ - $\text{C}_{12}$ alkylene. Present claim 5 requires B to be a 1,2-ethylene, 1,3-propylene or 1,2-propylene. Thus, there is no possible overlap of compounds generically disclosed in the second description of Reuscher with those of present claims 4 and 5.

On page 6, lines 5-6 of the Examiner's Answer, it is stated that "Reuscher teaches that the spacer can be an alkyl radical of 1-12 carbon atoms, bonded to the heterocycle and the cyclodextrin via amine bonds...The two-carbon chain in the elected species is an alkyl radical of 2 carbons, which is encompassed within 1-12."

In this analysis, the Examiner mixes and matches the two different generic descriptions of Reuscher. Again, the present elected specie and the compounds of present claims 4 and 5 are only very generically disclosed within the first description of Reuscher. The present elected specie and the compounds of present claims 4 and 5 are not at all disclosed in the second description of Reuscher.

Thus, the elected specie and claims 4 and 5 are not obvious over Reuscher.

Regarding claims 1-3, 7 and 10 (and 4 and 5), Appellants argued that while Reuscher generically describes a number of linking groups to the polysaccharide including amino, the processes described therein are silent about amino derivatives. Reuscher is non-enabling for the generic disclosure where his  $\text{R}^3$  is amino. Reuscher describes reacting cyclodextrin or cyclodextrin derivatives with suitable nitrogen containing heterocycles, col. 4, lines 33-41. Suitable heterocycles are nitrogen containing heterocycles having at least two electrophilic centers, col. 5, lines 34-36. Suitable cyclodextrin derivatives are cyclodextrin ethers or mixed ethers, cyclodextrin esters or mixed esters or mixed ether/esters, col. 4, lines 62-66. Cyclodextrin amine derivatives are not mentioned.

In the present compounds, the polysaccharides are linked via an amine.

See Example 1 of Reuscher where cyclodextrin is reacted with cyanuric chloride. A reactive chlorotriazinyl-cyclodextrin of formula I is prepared.

The Examiner states on page 6, lines 13-16, that "Reuscher teaches reaction of cyclodextrin with compounds containing OH, NH, or SH groups such as diamines including diaminopropane [column 9, lines 21-67]". This citation should be column 8, lines 21-67. Lines 21-23 state "The reactive cyclodextrin derivatives according to the invention are able to react with any desired compounds which carry one or more nucleophilic groups such as, for example, OH, NH or SH groups...". Reuscher here is referring to reactions of the final reactive cyclodextrin derivatives of formula I with a nucleophile, not the preparation of the compounds of formula I. The reactive cyclodextrin derivatives are for instance monochlorotriazinylcyclodextrin derivatives, col. 8, line 7.

Thus, the Examiner's statement on page 6, lines 18 and 19, that "Reaction of cyclodextrin with a diamine such as diaminopropane would result in a compound of claim 16, wherein B is alkyl and A is N" is erroneous. The citation of col. 8, line 60 through col. 9, line 4, refers to the reaction of diamines with a reactive cyclodextrin derivative. This reaction is with the final reactive compound of formula I and does not relate to the preparation of compounds of formula I with amino terminated linking groups.

Reuscher does not at all disclose the reaction of cyclodextrin, diaminopropane and cyanuric chloride as outlined on page 7 of the Examiner's answer.

The preparation of a present diamine precursor is outlined in Examples 1 and 2 on pages 29 and 30. A toluenesulfonyl cyclodextrin is prepared and reacted with a diamine. The present compound 116a is prepared by reacting the diamine linked cyclodextrin with a dichlorotriazine. Such reactions are not all disclosed in Reuscher. Alternatively, Reuscher describes the reaction of for instance chlorotriazinylcyclodextrins with diamines, col. 8, lines 60-64.

Reuscher does raise some confusion as he refers to the compounds of formula I as cyclodextrin derivatives or reactive cyclodextrin derivatives. He also refers to cyclodextrin derivatives for the preparation of compounds of formula I, col. 4, lines 32-43. These derivatives are distinct in the context of Reuscher.

In view of this, Appellants submit that claims 1-3, 7 and 10 are not obvious over Reuscher.

The present compounds of claim 16 are not at all disclosed in Reuscher. Reuscher fails to enable those skilled in the art to prepare amino-linked cyclodextrins.

In view of this, Appellants submit that claim 16 is not obvious over Reuscher.

Appellants aver that the Appeal Brief filed June 16, 2009 and this Reply Brief address and successfully rebut all of the Examiner's arguments presented in the Office Action of October 8, 2008 and the Examiner's Answer of August 18, 2009. Appellants aver that the instant claims are not obvious over Reuscher. Appellants maintain that the 35 USC 103(a) rejections of the instant claims are overcome, and that the rejections are in error and should be reversed.

Respectfully submitted,



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